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Award Number: W81XWH-05-2-0018

TITLE: Diabetes Care and Treatment Program: A Joslin Telemedicine Initiative

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14. ABSTRACT

The major goals of this continuing project are the establishment of a telemedicine system for comprehensive diabetes management and the assessment of diabetic retinopathy that provides increased access for diabetic patients to appropri ate care, that centralizes the patients in the care process, that empo wers the patient to be tter manage their disease, that can be perfo rmed in a cost effective manner, and that maintains the high stand ard of care required for the appropriate management of diabetic patients. The aim of this program of research will be to perform the appropriate clinical validation, cost efficiency, and risk benefit studies associated with the use of the recentl y developed Comprehensive Diabetes Management Program (CDMP) and the Joslin Vision Network (JVN) Eye Health Care Program that is no w a module of the CDMP. These research studies and the implementation of CDMP were originally planned at Tripler Army Medical Center (TAMC) in Honolulu, HI. Because t he decision was made at TAMC to accelerate t he adoption of a new electronic medical record (AHLTA), implementation of the CDMP was delayed indef initely. Conseq uently, alternative sites w ere chosen for these r esearch studies and the implementation of the CDMP: Waianae Coast Community Health Center, Waianae, HI; The Physicians Center at Mililani, Mililani, HI; and the Molokai General Hospital, Kaunakakai, HI.

15. SUBJECT TERMS Joslin Vision Network, telemedicine, diabetes mellitus, diabetic retinopathy, diabetes disease management, vision loss, diabetes complications, case management

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a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**		65	Deborah Birkmire-Peters, PhD
					19b. TELEPHONE NUMBER *(include area code)* 808-692-1090

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Introduction:

The major goals of this continuing project are the establishment of a telemedicine system for comprehensive diabetes management and the assessment of diabetic retinopathy that provides increased access for diabetic patients to appropriate care, that centralizes the patients in the care process, that empowers the patient to better manage their disease, that can be performed in a cost effective manner, and that maintains the high standard of care required for the appropriate management of diabetic patients. The aim of this program of research will be to perform the appropriate clinical validation, cost efficiency, and risk benefit studies associated with the use of the recently developed Comprehensive Diabetes Management Program (CDMP) and the Joslin Vision Network (JVN) Eye Health Care Program that is now a module of the CDMP. The Hawaiian sites chosen for these research studies and the implementation of the CDMP are: Waianae Coast Community Health Center, Waianae, HI; The Physicians Center at Mililani, Mililani, HI; and the Molokai General Hospital, Kaunakakai, HI.

Body:

This research program will leverage the recently developed Comprehensive Diabetes Management Program (CDMP) and the Joslin Vision Network (JVN) Eye Health Care Program that is now a module within the CDMP to provide continuum of care for diabetic patients. The CDMP application has been developed with participation and input from leading experts in diabetes care from the Joslin Diabetes Center, Department of Defense, the Veterans Health Administration, and the University of Hawaii.

Various studies have been deemed critical in order to provide the medical evidence to support preliminary data and expectations that this program will provide significant reductions in health care dollar expenses while maintaining a high quality of care as assessed through a reduction in complications such as blindness from diabetes. The expectation is that the use of this program will also increase the access of patients to appropriate care and provide a very powerful tool that will empower the patient to improve their own management of their diabetes.

Research Sites

Originally these research studies and the implementation of the CDMP were planned at Tripler Army Medical Center (TAMC) in Honolulu, HI and at Hawaii VA Community Based Outpatient Clinics (CBOCs) located in: Hilo, Hawaii County; Kahalui, Maui County; and Lihue, Kauai County. The decision was made at TAMC, however, to accelerate the adoption of a new electronic medical record (AHLTA or CHCSII), thereby, delaying the implementation of the CDMP indefinitely. During ensuing discussions with the government, it was proposed that the implementation of the CDMP and planned research studies be relocated to community health centers and clinics within the state of Hawaii. Site visits were conducted and evaluated for the proposed implementation of the CDMP and JVN imaging system and the proposed research studies. The sites selected for the project were: The Waianae Coast Community Health Center, The Physicians Center at Mililani, and the Molakai General Hospital (See Appendix F). A proposal modification and re-directed budget were submitted and approved by the government.

The change in research sites required the relocation of equipment from the Ophthalmology Service at Tripler Army Medical Center, and the Community Based Outpatient Clinics in Kahalui, Maui County and Lihue, Kauai County into the new sites. Deployment of the CDMP and the JVN retinal imaging system into The Waianae Coast Community Health Center, The Physicians Center at Mililani, and the Molakai General Hospital is planned for February 2006. Training of imagers for the JVN Eye Health Care Program is scheduled for February. 27, 2006 to March 2, 2006. Staff training at the three health centers for the CDMP is planned for March and April 2006.

Development of the CDMP Behavioral Assessment Tool (BAT)

Diabetes mellitus is a significant cause of morbidity and mortality in the United States.[1] Clinical and scientific evidence has led to the development of strategies that can reduce the complications of diabetes through timely treatments and appropriate management. Reduction or prevention of costly diabetes-related complications requires blood glucose levels be kept as close as possible to the normal range.[2,3] This is achieved through daily patient adherence to a healthy diet, including control of carbohydrate intake, regular exercise, appropriate use of diabetes medications (insulin and oral agents), and regular blood glucose monitoring to guide daily management decisions. In addition, hypoglycemia management and prevention, foot care, clinic visits, diabetes education, and various necessary medical screenings must all be incorporated into daily life.

Health care professionals usually attempt to assess a diabetic patient's current behaviors during routine clinic visits. These assessments, however, are problematic for several reasons, including practical time constraints in busy clinical practices, lack of

professional training, institutional support, reimbursement practices, and a paucity of user-friendly behavioral assessment tools. Thus, there is need for efficient and effective methods to measure diabetic patients' current behaviors.

In response to this need, the Behavioral Assessment Tool (BAT) was developed as a stand-alone module within the Comprehensive Diabetes Management Program (See Appendix G). The BAT was developed by a panel of health care experts in diabetes representing the Joslin Diabetes Center, the Department of the Army or the Medical Research and Materiel Command (MRMC), the Veteran's Administration, the University of Hawaii, and the Indian Health Service. The instrument consists of 39 multiple-choice questions about an individual's behavior. There are 13 sub-sections as follows: Diabetes History, Nutrition, Physical Activity, Checking Blood Sugars, Medications, Mood, Alcohol, Tobacco Use, Your Health, Support from Family and Friends, Coming to the Clinic, Education, and More about You. These sub-sections encompass behaviors with respect to three major behavioral categories: physical wellness (i.e., medications and general health), lifestyle and self-management (i.e., nutrition, physical activity, tobacco and alcohol use, and checking blood glucose levels), and psycho-social (i.e., mood, support network, and access to clinic). The panel deemed tobacco use to be critically important, and responses to tobacco use questions are reported separately, rather than in the category lifestyle and self-management. Additionally, the instrument collects some personal information (i.e., learning preferences and work status). The instrument was designed to require approximately 15 minutes to complete and to be usable for repeated applications.

Most of the BAT questions are structured to indicate low, intermediate and high risk of diabetes complications. Weights have been assigned to responses and summarized scores can be presented to the healthcare provider for each of the three behavioral categories (i.e., physical wellness, lifestyle and self-management, and psycho-social). A risk stratification scheme was developed in which ranges of scores in each of the three behavioral categories correspond to high, intermediate, and low risk. The range of scores for risk assessment was determined by a consensus of the panel that developed the instrument. The software program generates "alerts" based on a patient's risk level and notifies the health care provider of the patient's status. These alerts can be used to target areas for behavioral and/or educational interventions.

CDMP Behavioral Assessment Tool (BAT) Research Studies

Given that the BAT is a new instrument with much promise as a care management tool, it is necessary to test its measurement properties, including test-retest reliability and validity. The two studies listed below are prospective in nature and involve multiple participating centers, including The Waianae Coast Community Health Center, The Physicians Center at Mililani, and the Molakai General Hospital. These proposed prospective studies will require 2 to 3 years for successful completion. Both studies have the overall goal of suggesting approaches to modify the BAT in response to what is learned from the data collection and analyses.

A. An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program's (CDMP) Behavioral Assessment Tool: This research study focuses on assessing the test-retest reliability of the Behavioral Assessment Tool (BAT). The specific objectives of this study are:

(1) To determine the test-retest reliability of the BAT.

(2) To examine whether the BAT's test-retest reliability is invariant across social-demographic groups.

(3) To aggregate BAT data from all of the sites participating in the study (including Joslin) and examine whether test-retest reliability is invariant across sites.

B. An Assessment of the Validity of the Comprehensive Diabetes Management Program (CDMP) Behavioral Assessment Tool: This focuses on two types of criterion validity; concurrent validity and predictive validity. Concurrent validity is the correlation between a measure and an external criterion at the same point in time. Predictive validity[1] is the correlation between a measure and an external future criterion.[4,5] The specific objectives are:

(1) To establish the concurrent validity of the BAT by examining how study subjects' responses to its questions correlate with the following: a) their responses to similar questions in other questionnaires administered at the same time; b) recent self-report physical activity and food "logs"; c) a cotinine test (to assess smoking status); and d) concurrent health-related factors obtained from their medical records, including current or recent hemoglobin A1c (A1c), current or recent Body Mass Index (BMI), current prescribed medications, and current health conditions.

[1] *To illustrate predictive validity: Scholastic Aptitude Test (SAT) scores have a high predictive validity with College Grade Point Average (CGPA) (with a correlation of about .40). That is, the scores on a test routinely administered to high school students (SAT) "predicts" one measure of academic achievement in college (CGPA). Thus SAT scores are often used to justify college admission decisions.*

(2) To establish the predictive validity of the BAT by assessing how study subjects' responses to BAT questions (and subjects' risk stratification scores) correlate with their future health-related factors, namely health-related factors at six months and twelve months after the BAT administration completed at the beginning of the study as part of Objective 1. The health-related factors we will examine include: new A1c ; new BMI; adherence to recommended foot and eye exams in the intervening period; number of hospitalizations, number of hospital days, and number of emergency room visits in the intervening period; new medications; frequency of provider use and type of provider use in the intervening period; and new health conditions.

(3) To aggregate BAT data from all of the sites participating in the study (including Joslin) and examine whether these types of validity are invariant across sites.

Key Research Accomplishments:

- JVN imaging of diabetic patients became standard of care in the Ophthalmology Service at Tripler Army Medical Center
- The number of patients who received JVN imaging in Hawaii was 3203
- Research studies completed
    - Reading Center Certification
    - DOIT: Patient Education
    - JVN Imaging compared to dilated eye examination

- Recruitment of three new clinical sites for CDMP implementation and proposed research studies: The Waianae Coast Community Health Center, The Physicians Center at Mililani, and the Molakai General Hospital
- The CDMP Behavioral Assessment Tool was developed as a joint effort with representatives of the Joslin Diabetes Center, the New England VA, Walter Reed Army Medical Center, and the University of Hawaii
- A research protocol entitled "An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program's (CDMP) Behavioral Assessment Tool" has received final approval from the Institutional Review Boards of the Joslin Diabetes Center, the Boston VA, and the MRMC ORP Human Subjects Research Review Board
- A research protocol entitled "An Assessment of the Validity of the Comprehensive Diabetes Management Program (CDMP) Behavioral Assessment Tool" has received final approval from the Institutional Review Boards of the Joslin Diabetes Center and the MRMC ORP Human Subjects Research Review Board

Reportable Outcomes:

Papers and Presentations:

Coll, K.J., Birkmire-Peters, D.P., Pelletier, M.V., Cavallerano, J., Bursell, S., Winkle, R.K. & Aiello, L.M. (2005, April). Joslin Vision Network: Eye Care Visits Following JVN Imaging. Poster presented at the 10th Annual Meeting of the American Telemedicine Association, Denver, CO.

Birkmire-Peters, D.P., Coll, K.J., Dunlap, W.A., Bursell, S.-E., Cavallerano, J.D., & Aiello, L.M. (2004, May). Comparison of Dilated Eye Examinations to JVN Imaging at TAMC. Paper presented at the 9th Annual Meeting of the American Telemedicine Association, Tampa, FL.

Coll, K.J., Birkmire-Peters, D.P., Pelletier, M.V., Cavallerano, J., Bursell, S., Dunlap, W., Winkle, R.K. & Aiello, L.M. (2004, May). Joslin Vision Network: Evidence Supporting Need for Comprehensive Disease Management. Poster presented at the 9th Annual Meeting of the American Telemedicine Association, Tampa, FL.

Coll, K.J., Birkmire-Peters, D.P., Pelletier, M.V., Cavallerano, J., Bursell, S., Dunlap, W., Winkle, R.K. & Aiello, L.M. (2004, May). Joslin Vision Network: Evidence Supporting Need for Comprehensive Disease Management in Asians and Pacific Islanders. Poster presented at the 14th Asia Pacific Military Conference, Brisbane, Australia.

Coll, K.J.; Birkmire-Peters, D.P., Katalinic, P., Ann Tolson, BA, Cavallerano,A.; Cavallerano, J., Bursell, S., Dunlap, W; & Aiello,L.M. (2003, May). Joslin Vision Network: Impact on Clinical Operations at Tripler Army Medical Center. Poster presented at the 8th Annual Meeting of the American Telemedicine Association, Orlando, FL.

Sakuda, J.M., Swain, G., Yanellas, T., Saiki, S.M., Birkmire-Peters, D.P. & Kim, G. (2003, May). Tele-Health Applications in the VA Health Care System in Hawaii. Poster presented at the 8th Annual Meeting of the American Telemedicine Association, Orlando, FL.

Coll, K.J.; Birkmire-Peters, D.P.; Katalinic, P.; Ann Tolson, BA[3]; Cavallerano,A.; Cavallerano, J.; Bursell, S.; Dunlap, W; & Aiello,L.M. (2002, June). Joslin Vision Network Increases Access for Diabetic Eye Care at Tripler Army Medical Center. Poster presented at the 7th Annual Meeting of the American Telemedicine Association, Los Angeles, CA.

Birkmire-Peters, D.P., Coll, K.J., Dunlap, W. & Sukada, J. (2001, June). Joslin Vision Network Initiatives: Tripler Army Medical Center and Honolulu Veteran's Administration. Paper presented at the 6th Annual Meeting of the American Telemedicine Association, Ft. Lauderdale, Florida.

Bursell, S.-E., Cavallerano, J., Cavallerano, A., Clermont, A.C., Birkmire-Peters, D., Aiello, L. & the Joslin Vision Network Research Team. (2000). Joslin Vision Network Image Validation: Non-mydriatic, digital video retinal images compared to standard 35-mm photography for diabetic retinopathy diagnosis. Ophthalmology, 108 (3), 572-585.

Conclusions:

The implementation of the Comprehensive Diabetes Management Program, including the Joslin Vision Network (JVN) Eye Health Care Program that is now a module within the CDMP, should result in increased clinical effectiveness and economic efficiency through the use of disease management and care management for people with diabetes. Additionally, the use of the CDMP has the potential to markedly decrease vision loss secondary to diabetes, improve management of diabetes with a resultant decrease in mortality and morbidity, reduce patient associated emotional stress in dealing with their own diabetes, increase patient and provider satisfaction, and increase the cost-savings in the management of a chronic disease. The use of telemedicine here will enable the care management follow-up and coordination to take place easily over wide geographic areas.

The relocation of the planned CDMP implementation into the community health centers in Hawaii can potentially increase the generalizability of the results of the overall research program to a larger number of settings and to wider populations. First, the CDMP will be used and evaluated in primary care settings, as opposed to specialty clinics. Second, the populations served at these health centers are ethnically diverse and not represented in large part at other sites.

References:

[1]Centers for Disease Control and Prevention. National diabetes fact sheet: National estimates on diabetes. Atlanta, GA: US Department of Health and Human Services, CDC, 2002.

[2]Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *New England Journal of Medicine* 1993, 329: 977-86.

[3] United Kingdom Prevention of Diabetes Study, Prospective Diabetes Study Group. Intensive blood glucose control with sulfonylureas or insulin compared with conventional treatment and risk of complications with type 2 diabetes. *Lancet* 1998, 352: 837-53.

[4] Carmines, Edward G. and Zeller, Richard A. 1979. “Reliability and Validity Assessment.” Newbury Park, CA: Sage Publications, Inc.

[5] Crocker L, Algina J. Introduction to classical and modern test theory. New York:Holt, Rinehart & Winston, 1986; 224.

Appendix A

First Quarter (FY05) Activities

January 1, 2005 to March 31, 2005

Quarterly Report Format

1. Award No: W81XWH-05-2-0018
2. Report Date: 04/30/2005
3. Reporting period: 01/01/2005 – 03/31/2005
4. Principal Investigator: COL Dale Vincent, MD
5. Telephone No.: 808-433-5720
6. Award Organization: University of Hawaii
7. Project Title: Diabetes Care and Treatment
8. Current staff, role and percent effort of each on project.

STAFF MEMBER	ROLE	% EFFORT
COL Dale Vincent	PI	10%
Deborah BIrkmire-Peters, PhD	Co-I	50%
Kristin Okahashi, BA	Administrative Assistant	13%

9. Contract expenditures to date (as applicable):

COST ELEMENTS	THIS QUARTER	CUMULATIVE
Personnel		
Fringe Benefits		
Supplies		
Equipment		
Travel		
Other Direct Costs		
Subtotal		
Indirect Costs		
Fee		
Total		

10. Comments on administrative and logistical matters.

Implementation of the CDMP at Tripler Army Medical Center (TAMC) has been delayed due to additional requirements from the Information Management Division. Drew Lewis, Estenda Solutions, is addressing these requirements.

11. Use additional page(s), as necessary, to describe scientific progress for the quarter in terms of the tasks or objectives listed in the statement of work for this contract. Explain deviations where this isn't possible. Include data where possible.

A. The University of Hawaii hosted the 2005 CDMP Winter Summit from January 11 – 13 in Honolulu, HI. The agenda for January 11th included: (1) a review of the CDMP updates, including DM Everywhere (the patient portal), presented by Drew Lewis and RJ Kedziora, Estenda Solutions, (2) a presentation by Dr. Robert Vigersky entitled "The Development and Use of a Computer Assisted Decision Support Application," (3) a discussion of the initial review of the CDMP by the American Institutes of Research (AIR) and recommendations for the final part of the expert review, (4) a presentation by Dr. Joseph Humphry, Medical Director, Hawaii Medical Service Association and Clinical Assistant Professor of Medicine, John A. Burns School of Medicine, University of Hawaii on the Ohana Health application, and (5) a discussion of methods to maximize the CDMP's survey tools and architecture. The agenda for January 12th included: (1) a demonstration of the CDMP to representatives from Kalihi-Palama Community Health Clinic, (2) a demonstration of the CDMP Study Management Module, (3) a presentation of the status of CDMP studies, (4) a presentation by Barbara Satterfield, Telemedicine Coordinator, Molokai General Hospital, on the Diabetes Telemedicine Project at Molokai General Hospital, and (5) a discussion of the Office of Research Protections (ORP) process for approval of human studies led by Robert Read, TATRC. The agenda for January 13th included: (1) a presentation by Dr. Richard Arakaki, Professor of Medicine and Chair, Department of Endocrinology and Metabolism, John A. Burns School of Medicine, University of Hawaii on the Diabetes Prevention Program study, (2) discussions by breakout groups on translating nutritional/obesity/lifestyle data into a prevention program for CDMP, methods for uploading and presenting medications in the CDMP, and the WRAMC CDMP implementation, (3) a presentation by Dr. George Underwood, Chief, Bioinformatics, Tripler Army Medical Center on the Clinical and Economic Outcomes (CEO) Application currently used at Tripler Army Medical Center, and (4) collaboration with the University of Pittsburgh Medical Center. (See attached agenda).

B. Drs. Birkmire-Peters and Humphry held a video-teleconference with Barbara Satterfield, Telemedicine Coordinator, Desiree Puhi, Rural Health Clinic Director, and Jeanette Bince, Diabetes Educator to discuss the possible implementation of CDMP into Molakai General Hospital.

C. Dr. Birkmire-Peters participated in a conference call with Dr. Sven Bursell, Joslin Diabetes Center, and Drew Lewis, President, Estenda Solutions, Inc., about the possible integration of the CTA (Computer Training Academy) Personal Medical Assistant (PMA) into the CDMP.

D. Met with Kari Jo Parisi and Marianne Pelletier on February 7, 24 and March 21 to design a poster for presentation at the American Telemedicine Association Meeting reporting the number and kind of eye care visits at Tripler Army Medical Center following JVN imaging.

E. Dr. Birkmire-Peters attended meetings at the Joslin Diabetes Center from March 14 – 17, 2005. She met with Drs. Sven Bursell and Stephanie Fonda to discuss the planned reliability and validity studies for the Behavioral Assessment Tool (BAT) of the CDMP.

F. Dr. Birkmire-Peters participated in a conference call with Drs. Sven Bursell, Stephanie Fonda, Robert Vigersky, Paul Conlin, David Rodbard and Drew Lewis to discuss the American Institutes for Research (AIR) Expert Review of the CDMP.

G. Dr. Birkmire-Peters drafted job descriptions and initiated the process to hire a retinal imager and research coordinator.

12. Use additional page(s) to present a brief statement of plans or milestones for the next quarter.

A. The studies entitled “An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program’s (CDMP) Behavioral Assessment Tool” and “An Assessment of the Validity of the Comprehensive Diabetes Management Program’s (CDMP) Behavioral Assessment Tool” will be re-written in DOD format for submission to the Walter Reed Army Medical Center’s IRB for review.

B .The University of Hawaii will continue to work with Estenda Solutions to implement the CDMP into TAMC.

Agenda for JVN CDMP Summit
January 11, 12, and 13, 2005
Honolulu, Hawaii

Tuesday, January 11

8:30 – 8:45 am	Continental Breakfast
8:45 – 9:15 Sven Bursell	Welcome, introductions – Larry Burgess, Ron Poropatich,
9:15 – 10:30 am	Updates on CDMP Basic Functionality
10:30 – 10:45 am	Break
10:45 – 11:45 am	Diabetes Mellitus (or Disease Management) Everywhere (DME) – The CDMP patient portal
11:45 – Noon	Questions about CDMP and DME
Noon – 12:30 pm	Lunch (Served)
12:30 – 1:30 pm	Lunch Speaker: Bob Vigersky (WRAMC) - Development and Use of a Computer Assisted Decision Support Application
1:45 – 2:15 pm	Discussion on AIR Expert Review results as the first component of the Human Factors Study
2:15 – 3:00 pm	Speaker: Joe Humphry – Ohana Health Demonstration
3:00 – 3:15 pm	Break
3:15 – 4:15 pm	Maximizing CDMP's survey tools and architecture
4:15 – 4:30 pm	Identify Issues for further discussion over next two days; Adjourn

Wednesday, January 12

8:00 – 9:00 am	CDMP demo to Hawaii CHCs – note later start time for whole group
9:00 – 9:30 am	Continental Breakfast
9:30 – 11:00 am	Demonstration of CDMP Study Management Module and discussion and prioritization of additional features – Drew Lewis, Stephanie Fonda
11:00 – Noon	Status of CDMP studies, time lines, approvals – Stephanie Fonda, with summary reports from the participating Principal Investigators
Noon – 12:30 pm	Lunch (Buffet – please bring back to room) and phone and email checkins – back by 12:30, please
12:30 – 1:30 pm	Lunch Speaker: Barbara Satterfield, NP – Diabetes telemedicine project at Molakai General Hospital
1:30 – 3:30 pm	Roundtable: RCQ Process for Human Studies Approval – Bob Read
3:30 – 3:45 pm	Break
3:45 – 4:30 pm	Issues for further discussion/development: Studies Module and RCQ; Adjourn

Thursday, January 13

8:30 – 9:00 am	Continental Breakfast
9:00 am – 10:00 am	Richard Arakaki, University of HI, Medical School – Diabetes Prevention Program (DPP); other diabetes data and programs in Hawaii
10:00 – Noon	Mini break out sessions: • Study Management • Decision support - CADS integration and? • Survey tool development and scoring • Expansion of Nutrition Assessment modules to include weight and obesity management functionality • Addressing depression
Noon – 12:30	Lunch (Served) and phone and email check-ins – back by 12:30, please
12:30 – 1:30 pm	Lunch Time Speaker: George Underwood – Costs and Economic Outcomes (CEO); an application used at Tripler
1:30 – 2:15 pm	Trends and influences: A facilitated discussion to define future modules for CDMP application
2:15 – 3:00 pm	University of Pittsburgh Collaborative – Sven Bursell
3:00 – 3:15 pm	Break
3:15 – 4:30 pm	Open discussions – possible topics: • VA initiatives: open sourcing VistA; how to leverage this effort to move diabetes management into CHCs currently without EMRs • CDMP in the Indian Health Services: IT Issues and plans for deployment and use
4:30 – 4:45 pm	Outstanding issues, plans for follow-up (small/user-group meetings), and the next Summit
	Adjourn until July 11-12, 2005, in Boston

Appendix B

Second Quarter (FY05) Activities

April 1, 2005 to June 30, 2005

Quarterly Report Format

1. Award No: W81XWH-05-2-0018
2. Report Date: 06/30/2005
3. Reporting period: 04/01/2005 – 06/30/2005
4. Principal Investigator: COL Dale Vincent, MD
5. Telephone No.: 808-433-5720
6. Award Organization: University of Hawaii
7. Project Title: Diabetes Care and Treatment
8. Current staff, role and percent effort of each on project.

STAFF MEMBER	***Role***	**% EFFORT**
COL Dale VIncent	PI	10%
Deborah BIrkmire-Peters, PhD	Co-I	50%
Kristin Okahashi, BA	Administrative Assistant	25%

9. Contract expenditures to date (as applicable):

COST ELEMENTS	**THIS QUARTER**	**CUMULATIVE**
Personnel		
Fringe Benefits		
Supplies		
Equipment		
Travel		
Other Direct Costs		
Subtotal		
Indirect Costs		
Fee		
Total		

10. Comments on administrative and logistical matters.

The Command at Tripler Ar my Medical Center (TAMC) has acceler ated the implementation of CHCS II at Tripler Army Medical Center. As a result, the ICDB will no longer be supported and the implementation of CDMP into TAMC has been delayed indefinitely.

11. Use additional page(s), as necessary, to describe scientific progress for the quarter in terms of the tasks or objectives listed in the statement of work for this contract. Explain deviations where this isn't possible. Include data where possible.

A. The Telehealth Research Institute relocated their offices to the new John A. Burns School of Medicine campus in Kaka'ako, Honolulu, HI.

B. Dr. Stephanie Fonda, Joslin Diabetes Center, Drew Lewis, Estenda Solutions, Inc, and Dr. Birkmire-Peters demonstrated the CDMP Study Manager Module to Dr. Richard Arakaki. It was decided that it could be modified for use in a study investigating Genetic Screening for Diabetic Nephropathy.

C. Drs. DaleVincent and Birkmire-Peters and Kari-Jo Parisi attended the Annual Meeting of the American Telemedicine Association in Denver, CO. Ms. Parisi and Dr. Birkmire-Peters presented a poster entitled "Joslin Vision Network (JVN): Eye Care Visits Following Imaging." Dr. Birkmire-Peters attended meetings of the Human Factors SIG and the Joslin/DoD/VA Cooperative.

D. Dr. Birkmire-Peters meet with Dr. Robert Vigersky at Walter Reed Army Medical Center on April 27-28 and June 28, 2005 to discuss and review the DoD protocols for the CDMP BAT Test-Retest Reliability and Validity studies.

E. Dr. Birkmire-Peters attended the conference entitled "He Huliau – A Turning Point: Eliminating Health Disparities in Native Hawaiians and Pacific Peoples: Obesity 2005" in Ko Olina, Hawaii from May 5 -6.

F. Dr. Birkmire-Peters participated in a conference call with Estenda Solutions, Inc. to discuss revisions to the CDMP Behavioral Assessment Tool on May 12.

G. Dr. Birkmire-Peters participated in a conference call with the ATA Human Factors SIG on May 26.

H. Dr. Stephanie Fonda, Joslin Diabetes Center, Drew Lewis, Estenda Solutions, Inc. and Dr. Birkmire-Peters visited Molokai General Hospital, Waianae Coast Comprehensive Health Center, and The Physician Center at Mililani. Dr. Joseph Humphry also visited Molokai General Hospital. Mr. Lewis demonstrated the CDMP at each of the sites to both clinical and IT staff. Discussions were held at each site regarding the possible implementation of the CDMP and the possible installation of the JVN retinal imaging camera into their organizations. Additionally, Mr. Lewis demonstrated the CDMP to personnel from the Hawaii Primary Care Association and to Dr. Helani Chang from the University of Hawaii. Dr. Fonda, Mr. Lewis, and Dr. Birkmire-Peters met with Dr. Richard Arakaki and his staff to review modifications to the CDMP Study Manger.

I. Dr. Birkmire-Peters attended meetings at the Joslin Diabetes Center from June 21- 23, 2005. During that time she and Dr. Sven Bursell, Director, JVN Telehealth Programs, participated in a conference call with COL Poropatich to discuss concerns regarding the implementation of CDMP into Tripler Army Medical Center (TAMC). As stated previously, the Command at TAMC has accelerated the implementation of CHCS II. As a result, the ICDB will no longer be supported and the implementation of CDMP into TAMC has been delayed indefinitely. Drs. Birkmire-Peters and Bursell suggested that the planned CDMP research could be carried out at alternative sites in Hawaii, specifically the community health centers. COL Poropatich verbally approved moving the planned CDMP implementation and research to Hawaii community health centers. Dr. Birkmire-Peters also met with Dr. Lloyd Aiello to discuss the data from the study comparing a dilated eye examination to evaluation of digital retinal images for the diagnosis of level of diabetic retinopathy.

12. Use additional page(s) to present a brief statement of plans or milestones for the next quarter.

A. The prime DOD Cooperative contract DAMD17-03-2-0062 with Joslin Diabetes Center needs to be modified to show the change from the implementation of CDMP and the associated research studies from TAMC to Hawaii community health centers.

B. The University of Hawaii contract W81XWH-05-2-0018 also needs to be modified to show the change from the implementation of CDMP and the associated research studies from TAMC to Hawaii community health centers. Additionally, the impending retirement of COL Vincent will also necessitate a change in Principal Investigator to Dr. Birkmire-Peters.

Appendix C

Third Quarter (FY05) Activities

July 1, 2005 to September 30, 2005

Quarterly Report Format

1. Award No: W81XWH-05-2-0018
2. Report Date: 06/30/2005
3. Reporting period: 07/01/2005 – 09/30/2005
4. Principal Investigator: COL Dale Vincent, MD
5. Telephone No.: 808-433-5720
6. Award Organization: University of Hawaii
7. Project Title: Diabetes Care and Treatment
8. Current staff, role and percent effort of each on project.

STAFF MEMBER	ROLE	% EFFORT
Deborah BIrkmire-Peters, PhD	PI	50%
COL Dale Vincent, MD	Co-I	10%
Joseph Humphry, MD	Co-I	10%
Kristin Okahashi, BA	Administrative Assistant	25%
Kari-Jo Parisi, RN	Imager/Reader	Intermittent

9. Contract expenditures to date (as applicable):

COST ELEMENTS	THIS QUARTER	CUMULATIVE
Personnel		
Fringe Benefits		
Supplies		
Equipment		
Travel		
Other Direct Costs		
Subtotal		
Indirect Costs		
Fee		
Total		

10. Comments on administrative and logistical matters.

A. The prime DOD Cooperative contract DAMD17-03-2-0062 with Joslin Diabetes Center was modified to show the change from the implementation of CDMP and the associated research studies from TAMC to Hawaii health centers. The Hawaii sites are specifically, Waianae Coast Comprehensive Health Center (WCCHC), the Physician Center at Mililani, and Molokai General Hospital.

B. The University of Hawaii contract W81XWH-05-2-0018 was modified to show the change from the implementation of CDMP and the associated research studies from TAMC to Hawaii community health centers. The Hawaii sites are specifically, Waianae Coast Comprehensive Health Center (WCCHC), the Physician Center at Mililani, and Molokai General Hospital. Due to the retirement of COL Dale Vincent from the US Army, the Principal Investigator was also changed to Dr. Deborah Birkmire-Peters.

C. The re-directed budget for the FY04 funds was submitted to TATRC for processing and approval by USAMRAA.

D. The FY05 budget was submitted to TATRC for approval.

E. Kari-Jo Parisi was hired effective 9/27/2005 as an intermittent employee. She will be employed as the digital retinal image reader for images acquired at the Hawaii sites, do refresher training for the Hawaii imagers, and serve as a resource for the Hawaii imagers. Additionally, she will assist the PI with studies previously conducted at TAMC.

F. Dr. Joseph Humphry was hired effective 10/10/2005 as the Health Center Medical Liaison at .10 FTE. His duties include coordination of operational activities and clinical implementation of research studies in support of the Diabetes Care and Treatment project in Hawaii health centers. He will also provide input into the development of the Comprehensive Diabetes Management Program.

11. Use additional page(s), as necessary, to describe scientific progress for the quarter in terms of the tasks or objectives listed in the statement of work for this contract. Explain deviations where this isn't possible. Include data where possible.

A. Dr. Birkmire-Peters, Dr. Stephanie Fonda, Joslin Diabetes Center, and Drew Lewis, Estenda Solutions participated in conference calls with members of Dr. Richard Arakaki's research team to discuss the development and use of the CDMP Study Manager for the Genetic Screening for Diabetic Nephropathy study on July 7 and July 28.

B. Drs. Birkmire-Peters and Humphry attended the CDMP Summer Summit in Boston, MA from July 11 -12. Dr. Birkmire-Peters gave a status report on the change in sites in Hawaii. Dr. Humphry presented a summary of issues for the incorporation and display of medications in the CDMP.

C. Kari-Jo Parisi met with Dr. Lloyd Aiello, Joslin Diabetes Center, in Boston, MA from July 22 to August 4. She and Dr. Aiello reviewed digital retinal images collected at TAMC for an investigation comparing the diagnosis of level of diabetic retinopathy from a dilated eye examination and from JVN digital images. For images where there was a discrepancy between readers, Dr. Aiello adjudicated. Ms. Parisi compiled a complete data set for the study and sent it to Dr. Birkmire-Peters for analyses.

D. Dr. Birkmire-Peters attended the 3rd Annual Disease Management Conference in Boston, MA from August 1 – 3. Presentations in the conference were given on current developments and strategies in disease management, emerging trends, and case studies.

E. COL Ron Poropatich was briefed by Dr. Birkmire-Peters on the current status of the Hawaii sites on August 11.

F. Dr. Birkmire-Peters co-authored an abstract entitled "A Human Factors Analysis of the Joslin Vision Network Comprehensive Diabetes Management Program (CDMP)" that was submitted to the American Telemedicine Association for presentation at the annual meeting.

G. Dr. Birkmire-Peters participated in a conference call with members of the American Telemedicine Association Human Factors SIG on September 14.

12. Use additional page(s) to present a brief statement of plans or milestones for the next quarter.

A. Site visits with clinical and IT staff at Waianae Coast Comprehensive Health Center (WCCHC), the Physicians Center at Mililani, and Molokai General Hospital are planned. Drs. Birkmire-Peters, Sven Bursell, Stephanie Fonda, Dale Vincent, and Joseph Humphry and Drew Lewis will visit each site. The planned CDMP implementation, JVN imaging system installation, and proposed research studies will be discussed.

B. The Behavioral Assessment Tool protocols entitled "An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program's (CDMP) Behavioral Assessment Tool" and "An Assessment of the Validity of the Comprehensive Diabetes Management Program (CDMP) Behavioral Assessment Tool" will be submitted to the Walter Reed Army Medical Center Department of Clinical Investigations for review and approval.

Appendix D

Fourth Quarter (FY05) Activities

October 1, 2005 to December 31, 2005

Quarterly Report Format

1. Award No: W81XWH-05-2-0018
2. Report Date: 06/30/2005
3. Reporting period: 10/01/2005 – 12/31/2005
4. Principal Investigator: COL Dale Vincent, MD
5. Telephone No.: 808-433-5720
6. Award Organization: University of Hawaii
7. Project Title: Diabetes Care and Treatment
8. Current staff, role and percent effort of each on project.

STAFF MEMBER	ROLE	% EFFORT
Deborah BIrkmire-Peters, PhD	PI	50%
Dale Vincent, MD	Co-I	25%
Joseph Humphry, MD	Co-I	10%
Kristin Okahashi, BA	Administrative Assistant	25%
Kari-Jo Parisi	Imager/Reader	Intermittent

9. Contract expenditures to date (as applicable):

COST ELEMENTS	THIS QUARTER	CUMULATIVE
Personnel		
Fringe Benefits		
Supplies		
Equipment		
Travel		
Other Direct Costs		
Subtotal		
Indirect Costs		
Fee		
Total		

10. Comments on administrative and logistical matters.

A. The a no-cost extension and a re-directed budget for the FY04 funds were approved by USAMRAA.

B. A response was prepared for submission to USAMRAA to clarify questions regarding the Year 2 budget.

C. Dr. Dale Vincent, MD retired from the US Army and became a co-investigator on the project at .25 FTE.

11. Use additional page(s), as necessary, to describe scientific progress for the quarter in terms of the tasks or objectives listed in the statement of work for this contract. Explain deviations where this isn't possible. Include data where possible.

A. Dr. Birkmire-Peters attended the Joslin/DoD/VA/IHS Diabetes Research Retreat held at the Phoenix Indian Medical Center from October 27-28, 2005. Reports on the current status of ongoing studies were given. Discussions were also held of studies under development, as well as, future research opportunities. See the attached agenda for specific details.

B. Dr. Birkmire-Peters and Drew Lewis, Estenda Solutions, Inc. met with IT personnel from the Waianae Coast Comprehensive Health Center and the Physician's Center at Mililani to discuss CDMP and JVN implementation issues (Nov. 3, 2005).

C. Drs. Sven Bursell, Joslin Diabetes Center, Birkmire-Peters, Dale Vincent, and Joseph Humphry, University of Hawaii, and Drew Lewis, Estenda Solutions, Inc., met with personnel from the Bay Clinic in Hilo, Hawaii and with Dr. Sharon Vitousek, North Hawaii Outcomes Project Director. Mr. Lewis demonstrated the CDMP. Discussions were held regarding the possible implementation of the CDMP into these sites.

D. Drs. Sven Bursell and Stephanie Fonda, Joslin Diabetes Center, Drew Lewis, Estenda Solutions, Inc. and Dr. Birkmire-Peters visited Molokai General Hospital, Waianae Coast Comprehensive Health Center, and The Physician Center at Mililani. Dr. Joseph Humphry also visited Molokai General Hospital. Discussions were held at each site regarding the implementation of the CDMP and the JVN retinal imaging cameras and potential research topics. Each site tentatively identified research projects of interest. Additionally, each site agreed to do at least one research study using the JVN retinal imaging systems.

E. Dr. Birkmire-Peters attended meetings at the Joslin Diabetes Center from Nov. 28-30, 2005. She met with Dr. Stephanie Fonda to discuss the planned reliability and validity studies for the Behavioral Assessment Tool (BAT) of the CDMP. As a result of their discussions, decisions were made to modify the Behavioral Assessment Tool protocol entitled "An Assessment of the Validity of the Comprehensive Diabetes Management Program (CDMP) Behavioral Assessment Tool." The modifications resulted in a simplified protocol. Dr. Birkmire-Peters revised the Joslin version of the protocol incorporating these modifications and sent the protocol to Dr. Fonda for final revisions. The protocol has been resubmitted to the Joslin Diabetes Center Committee on Human Studies for approval of the modifications.

F. The Behavioral Assessment Tool protocol entitled "An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program (CDMP) Behavioral Assessment Tool" was submitted to the Walter Reed Army Medical Center Department of Clinical Investigations for review by its Institutional Review Boards, i.e, administrative, scientific, and human use.

G. Drs. Birkmire-Peters, Vincent, and Humphry held meetings on Nov. 17 and Dec. 8, 2005 to discuss the current status of the project in Hawaii.

H. Dr. Birkmire-Peters participated in a conference call with Drs. Sven Bursell, Stephanie Fonda (Joslin Diabetes Center), Paul Conlin (Boston VA), and Robert Vigersky (Walter Reed Army Medical Center) to plan presentations for the upcoming Distance Medicine Product Line Review in January 2006.

12. Use additional page(s) to present a brief statement of plans or milestones for the next quarter.

A. Drs. Birkmire-Peters, Vincent, and Humphry will attend the CDMP Winter Summit in Santa Cruz, CA from Jan. 11-12, 2006. Dr. Vincent will give a presentation on group visits using CDMP.

B. Dr. Birkmire-Peters will give a presentation on the status of the CDMP projects in Hawaii and on the CDMP Behavior Assessment Tools validation study at the Distance Medicine Product Line Review.

C. Site visits with IT staff at Waianae Coast Comprehensive Health Center (WCCHC), the Physicians Center at Mililani, and Molokai General Hospital are planned. Drew Lewis, Rick Welsh, and Michael Dech will perform maintenance on the JVN cameras, install upgrades, and install cameras at each site. The CDMP will also be installed at each of the sites.

D. The Behavioral Assessment Tool protocol entitled "An Assessment of the Validity of the Comprehensive Diabetes Management Program (CDMP) Behavioral Assessment Tool" will be submitted to the Walter Reed Army Medical Center Department of Clinical Investigations for review and approval.

Joslin/DOD/VA/IHS Diabetes Research Group

October 27-28, 2005
Phoenix Indian Medical Center
Multi-purpose Room in the Primary Care Medical Clinic

Meeting Agenda

Thursday, October 27, 2005

08:00 – 08:30 Welcome and social time

Discussion of ongoing studies

08:30 – 09:15 Paul Conlin
- Internet-based Diabetes Education and Case Management
- An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program's (CDMP) Behavioral Assessment Tool
- Prospective Risk Benefit Analysis of the JVN Telehealth Eye Care Module

09:15 – 09:45 Mark Horton
Clinical validation study of JVN for 10 non-DR diagnoses

09:45 – 10:00 Break

10:00 – 10:45 Robert Vigersky
- The Comprehensive Diabetes Management Program (CDMP): Usability and Impact of the Workflow on Diabetes Care Specialists and on their Process and Quality Measures
- Prospective Economic Analysis of the Joslin Vision Network (JVN) Telehealth Eye Care Module (Vigersky and Whited)

10:45 – 11:45 Stephanie Fonda/Deborah Peters
- An Assessment of the Test-Retest Reliability of the Comprehensive Diabetes Management Program's (CDMP) Behavioral Assessment Tool
- An Assessment of the Validity of the Comprehensive Diabetes Management Program's (CDMP) Behavioral Assessment Tool
- Digital Photography and Group Discussion as a Means of Affecting Dietary Change among People with Type 2 Diabetes: Feasibility Project
- Human Factor Study of CDMP Application: Usability Lab

11:45 – 12:00 Wrap up discussion of ongoing studies

12:00 – 13:00 Lunch

13:00 – 14:00 Tour of PIMC (medical care clinic and imaging center)

Discussion of studies in development

14:00 – 15:00 Charlton Wilson
Effectiveness of using CDMP to improve nurse managed outcomes

15:00 – 15:15 Break

15:15 – 16:00 Robert Vigersky
Clinical Outcomes Efficacy and Cost Efficiency Study Using the JVN CDMP (WRAMC version)

16:00 – 17:00 Stephanie Fonda
Clinical Outcomes Efficacy and Cost Efficiency Study Using the JVN CDMP (Joslin version)

Friday, October 28, 2005

Discussion of future studies and funding opportunities

08:00 – 09:30 Discussion of new funding opportunities:
- Potential research questions
- Outcome measures
- Collaborations
- Funding agencies

09:30 – 09:45 Break

09:45 – 11:00 Continued discussion

11:00 Adjourn

Appendix E

Project Personnel

Project Personnel

Staff Member	Role	% Effort
Deborah Birkmire-Peters, PhD	PI	50%
Dale Vincent, MD	Co-I	25%
Joseph Humphry, MD	Co-I	10%
Kari-Jo Parisi, RN	Imager/Reader	Intermittent

Appendix F

CDMP Initiatives in Hawaii

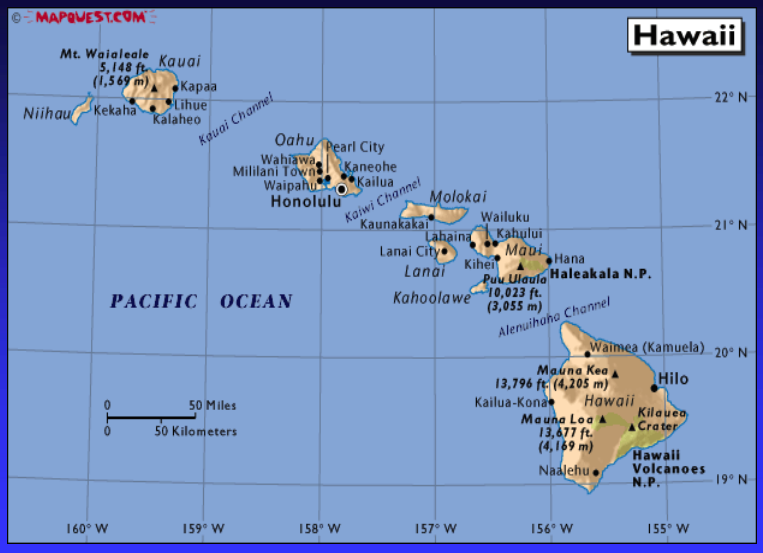
CDMP Initiatives in Hawaii

Deborah P. Birkmire-Peters, PhD
Joseph Humphry, MD
University of Hawai'i at Manoa

Sven-Erik Bursell, PhD
Stephanie Fonda, PhD
Joslin Diabetes Center

Drew Lewis
Estenda Solutions, Inc.

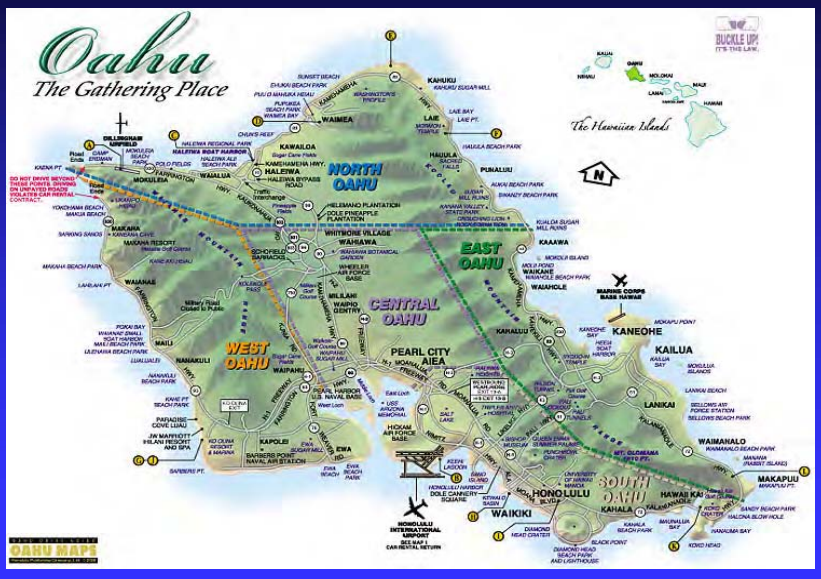
CDMP Summer Summit
July 12, 2005



Waianae Coast Comprehensive Health Center (WCCHC)

- Four communities
  - Nanakuli
  - Maili
  - Waianae
  - Makaha
- 10 miles of coastline and 5 miles inland

Waianae Coast Comprehensive Health Center (WCCHC)



Waianae Coast Comprehensive Health Center (WCCHC)

- Population: 42,259*
  - 41% Multiracial
  - 29% Native Hawaiian or other Pacific Islander
  - 17% Asian
  - 11% Caucasian
- Largest population of Native Hawaiians in state

*2000 Census

Waianae Coast Comprehensive Health Center (WCCHC)

Most economically disadvantaged on island of Oahu:

- Highest percentage of population on Oahu below 200% of federal poverty level
- Highest percentage of households receiving financial aid (23.1% in Waianae vs 4.9% in state)
- Highest percentage of households using food stamps (45.3% vs 12.9%)

Waianae Coast Comprehensive Health Center (WCCHC)

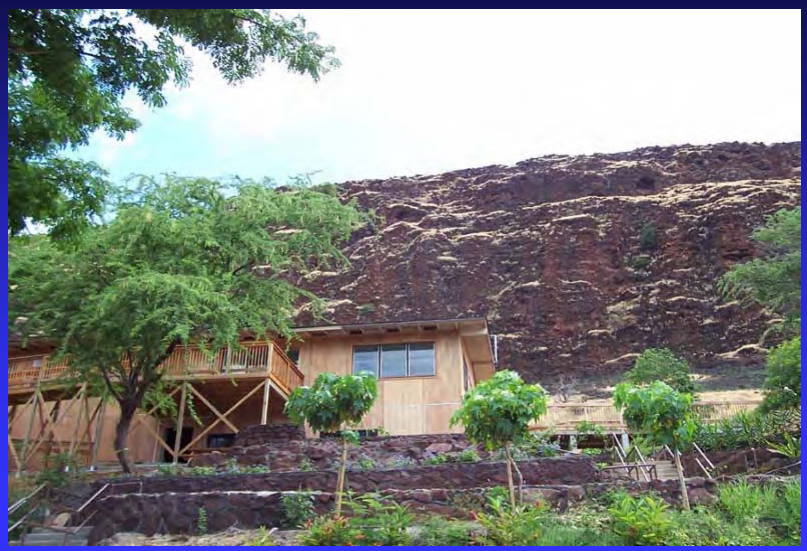
- Five clinics on Waianae Coast and in Kapolei and Waipahu
- Services:
  - Primary care
  - Emergent care (24 hours)
  - Some speciality care
  - Laboratory (24 hours)
  - Radiology (24 hours)
  - Dental
  - Pharmacy
  - Preventative health/health education
  - Medical nutrition therapy/WIC
  - Case management and homeless outreach
  - Chronic disease management
  - Native Hawaiian healing
  - Integrative/alternative medicine
  - Lifestyle enhancement
  - Adult day care
  - Behavioral health

Waianae Coast Comprehensive Health Center (WCCHC)

- Total number of individuals seen for services in 2003 was 23,943
- Total number of encounters in 2003 was 125,642
- Clinic population:
  - 77% Asian Pacific Islanders (51% of which were Native Hawaiians)
  - 65% were below 100% federal poverty level
  - 1500 individuals diagnosed with diabetes seen in 2003 (6.29% of total number seen at WCCHC)

Waianae Coast Comprehensive Health Center (WCCHC)

Waianae Coast Comprehensive Health Center (WCCHC)



Waianae Coast Comprehensive Health Center (WCCHC)

Waianae Coast Comprehensive Health Center (WCCHC)

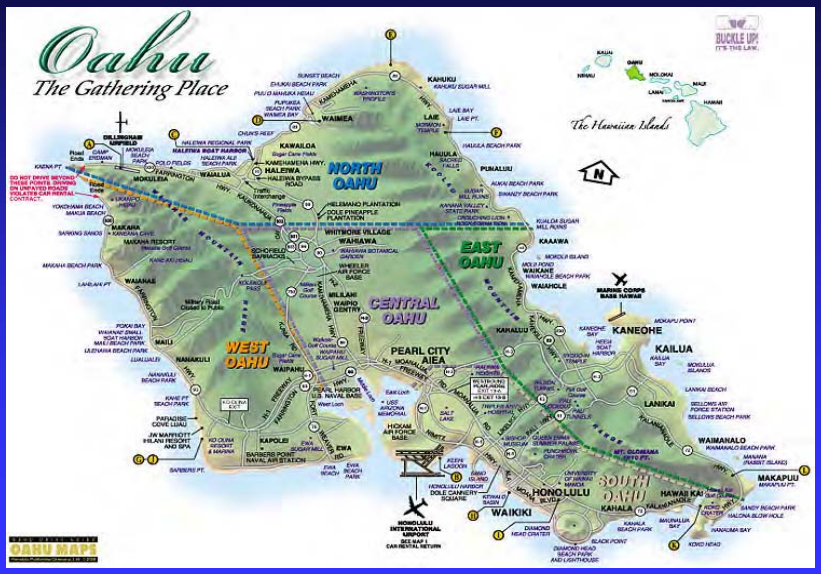
Waianae Coast Comprehensive Health Center (WCCHC)

Waianae Coast Comprehensive Health Center (WCCHC)

- Electronic medical record (NextGen)
- Research projects:
  - Waianae Cancer Research Project
  - Hawaii Diet Study
  - Intimate Partner Violent Pilot Study

The Physicians Center at Mililani

Located in central Oahu



The Physicians Center at Mililani

Large, urban setting

The Physicians Center at Mililani

- Outpatient clinic for residents and faculty of the University of Hawaii Family Practice Residency Program
- Mission to provide optimal health care to underserved communities in Hawaii and the Pacific Basin
- Large number of indigent patients on state-funded health insurance or with no insurance

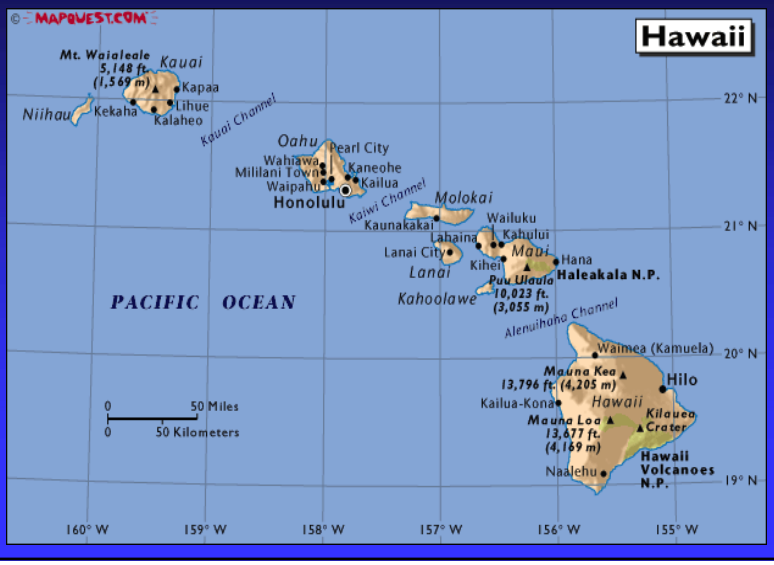
The Physicians Center at Mililani

- Population:
  - 1% African American
  - 18% Caucasian
  - 30% Asian
  - 9% Native Hawaiian
  - 6% Pacific Islander
  - 31% Filipino
  - 5% Other
- Approximately 300 patients diagnosed with diabetes
- No electronic medical record

Molokai
General Hospital

- Located on the island of Molokai which is the most rural and underdeveloped of the major islands in the Hawaiian chain
- Total population under 7500

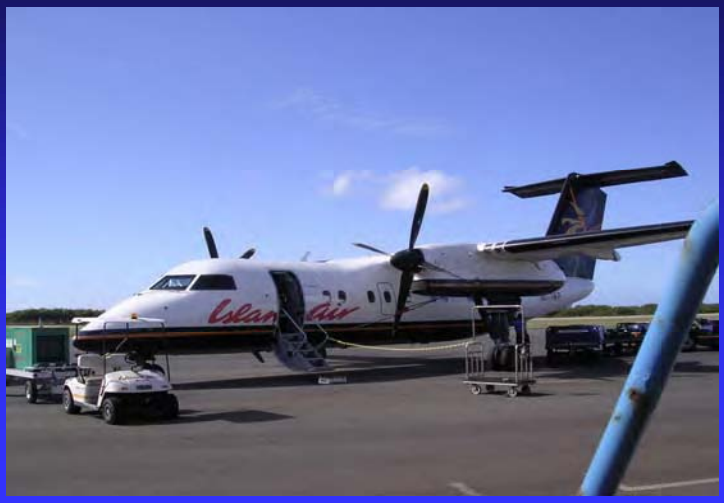
Molokai General Hospital



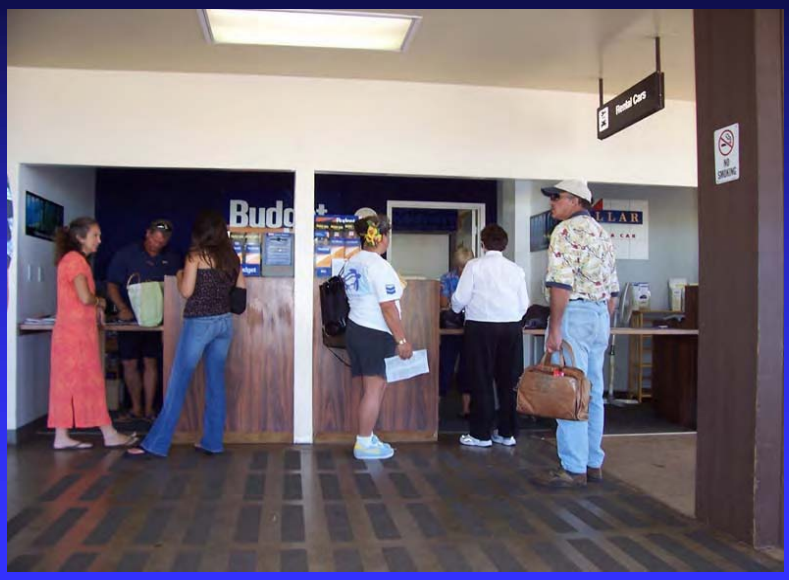
Molokai General Hospital

- Population largely economically disadvantaged:
  - 47.6% of the population more than 200% under the federal poverty level (1998)
  - The civilian unemployment rate was 11.3% in 2003
  - 24.5% of the population using food stamps (2003)

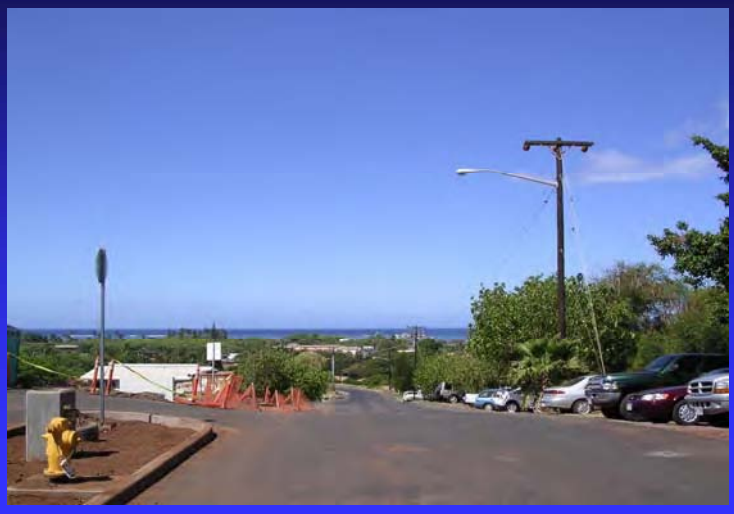
Molokai General Hospital



Molokai General Hospital



Molokai General Hospital



Molokai General Hospital

Molokai General Hospital

Molokai General Hospital

Molokai General Hospital

- 11 bed facility
- Rural Health Clinic co-located with Molokai General Hospital
- Healthcare providers wear multiple hats
- No resident specialists
- Eye care specialty care available on itinerant basis
- No electronic medical record

Appendix G

CDMP Behavioral Assessment Tool (BAT)

BEHAVIORAL ASSESSMENT TOOL (Version: 8 February 2006)

1. Is English your native language?
   - O Yes
   - O No

Skip to question #4

2. When you learn something new, does it help to hear it in your native language?
   - O Yes
   - O No
   - O Don't know or not sure

3. Would you like someone who speaks your native language to help you complete this survey?
   - O Yes
   - O No
   - O Don't know or not sure

4. Do you have problems reading and understanding written materials?
   - O Yes
   - O No
   - O Don't know or not sure

Skip to question #6

5. Would you like someone to read the survey questions to you?
   - O Yes
   - O No
   - O Don't know or not sure

Diabetes History

6. When were you first told you have diabetes?
   - O I was diagnosed within the last 12 months
   - O 1 - 5 years ago
   - O 6 - 10 years ago
   - O More than 10 years ago
   - O Don't know or not sure

Nutrition

7. On a typical day, how many servings of fruits and vegetables do you eat?

- O None
- O 1 - 5 servings
- O 6 – 10 servings
- O More than 10 servings
- O Don't know or not sure

8. During the past 7 days, how often did you eat 3 meals a day (that is, you did not skip a meal)?

- O 0 days
- O 1 - 5 days a week
- O 6 - 7 days a week
- O Don't know or not sure

9. How many times in the past 7 days have you eaten food prepared in a restaurant or cafeteria?

- O 0 times
- O 1 - 2 times
- O 3 - 5 times
- O 6 or more times
- O Don't know or not sure

Physical Activity

10. How would you describe your physical activity level?

- O Sedentary or lightly active (Mostly sitting or lying down, or sitting or standing most of the day, e.g., watching TV, reading,, desk work, teaching, white collar work, light housework)
- O Moderately active (Standing or walking, moving most of the day, e.g., heavy housework, brisk walking, gardening)
- O Very active (Moving strenuously, e.g., aerobics, biking, hiking, running, climbing stairs, mowing the lawn, manual labor)
- O Don't know or not sure

11. In the last 7 days, how many times were you moderately to very physically active for 30 minutes or more (e.g., heavy housework, brisk walking, gardening, aerobics, biking, hiking, running, climbing stairs, mowing the lawn, manual labor)?

- O 0 times
- O 1 - 3 times
- O 4 - 6 times
- O More than 6 times
- O Don't know or not sure

Checking Blood Sugars

12. How often do you check your blood sugar?

- O Never
- O Less than once a week
- O 1 - 5 days a week
- O About once a day
- O Twice a day or more
- O Don't know or not sure

Medications

13. In the last 7 days, how often did you miss taking your diabetes pills or insulin?

- O Never
- O 1 time a week
- O 2 - 4 times a week
- O Most days
- O Everyday
- O Don't know or not sure

Mood

14. During the past month have you often been bothered by feeling down, depressed, or hopeless?

- O Yes
- O No
- O Don't know or not sure

15. During the past month have you often had little interest or pleasure in doing things?

- O Yes
- O No
- O Don't know or not sure

Alcohol

16. Do you drink alcohol?

- O Yes
- O No
- O Don't know or not sure

Skip to question #18

17. Are you concerned about your drinking?

- O Yes
- O No
- O Don't know or not sure

Smoking

18. Do you smoke cigarettes, cigars, a pipe, or chew tobacco?

- O Yes
- O No
- O No, but I quit within the last 6 months
- O Don't know or not sure

Your health

19. In general, would you say your health is:

- O Excellent
- O Very Good
- O Good
- O Fair
- O Poor
- O Don't know or not sure

20. Have you been examined by an eye doctor in the last 12 months?

- O Yes
- O No
- O Don't know or not sure

21. How often do you check your feet for sores, cuts, or bruises?

- O Never
- O Less than once a month
- O Once a month
- O Every couple of weeks
- O At least once a week
- O Every day
- O Don't know or not sure

22. Have your feet been examined by a health care provider in the last 12 months?

- O Yes
- O No
- O Don't know or not sure

23. Do you use other medications, healing methods or remedies in addition to those prescribed for you?

- O Yes
- O No
- O Don't know or not sure

Support from Family and Friends

24. Do you have family and friends you can ask for help?

- O Yes
- O No
- O Don't know or not sure

Skip to question #27

25. Do your family and friends live in your house or nearby?

- O Yes
- O No
- O Don't know or not sure

26. Do you agree with the following statement: “My family and friends support me by encouraging me to do things to improve my health”?

- O Strongly agree
- O Agree
- O Neither agree nor disagree
- O Disagree
- O Strongly disagree
- O Don’t know or not sure

Coming to the clinic

27. Do you have problems getting to the clinic?

- O Yes
- O No
- O Don’t know or not sure

28. How long does it usually take you to get to the clinic?

- O Less than 30 minutes
- O 30 minutes to an hour
- O More than an hour
- O Don’t know or not sure

29. How do you usually get to the clinic?

- O My family or a friend drives me
- O I drive myself
- O I ride a van, bus or train
- O I walk or ride a bicycle
- O Other
- O Don’t know or not sure

Education

30. How do you like to learn about new things?

		Yes	No
a.	Watching slides or videos	O	O
b.	Reading	O	O
c.	Others showing me how	O	O
d.	Discussions	O	O
e.	Listening to others	O	O
f.	Using computers	O	O
g.	In a class	O	O
h.	Other ways	O	O

31. How much have you learned about diabetes from reading materials, visits with health care providers or attending classes?

O None

O Some

O A lot

O Don't know or not sure

32. Would you like to learn more about taking care of your diabetes?

O Yes

O No

O Don't know or not sure

More About You

33. Which best describes you?

		Yes	No
a.	Employed full-time	O	O
b.	Employed part-time	O	O
c.	Disabled	O	O
d.	Retired	O	O
e.	Student	O	O
f.	Looking for work	O	O
g.	Other	O	O

34. Do you have any vision problems?

- O Yes
- O No
- O Don't know or not sure

35. Do you have any hearing problems?

- O Yes
- O No
- O Don't know or not sure

36. Do you have any problems walking?

- O Yes
- O No
- O Don't know or not sure

37. Do you have problems remembering things?

- O Yes
- O No
- O Don't know or not sure

38. Do you have any money issues that affect your ability to take care of any of the following items?

		Yes	No
a.	Medications	O	O
b.	Food	O	O
c.	Transportation	O	O
d.	Self-monitoring supplies	O	O

39. *(NOTE: QUESTION WILL NOT BE ASKED FOR THIS STUDY) Do you have any concerns about your diabetes that we have not covered today? If you check yes, someone from the staff will talk to you about them.*

- O *Yes*
- O *No*
- O *Don't know or not sure*

SECTION D. FINAL QUESTION

1. Did you complete these questions with help from another person?

   O Yes

   O No

   O Don’t know or not sure

Appendix H

2005 ATA Poster Presentation

Joslin Vision Network (JVN): Eye Care Visits Following Imaging

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PURPOSE

To evaluate follow-up management for diabetes patients with diabetes and non-diabetes related eye pathologies at the Tripler Army Medical Center (TAMC) following Joslin Vision Network (JVN) imaging.

METHODS

A certified JVN imager obtained digital-video retinal images using the Topcon TRC-NW6S camera from TAMC patients according to JVN/Department of Defense established JVN nonmydriatic, retinal imaging telemedicine program protocol. The imager obtained an external image and three 45-degree stereoscopic fields for each eye without pupil dilation. A certified JVN image review specialist reviewed images to determine clinical level of diabetic retinopathy (DR) and other non-diabetic ocular findings. The review specialist generated consults to the TAMC ophthalmologists for diabetes and non-diabetes related eye pathologies based on clinic standards of care for follow-up visits. Review of the electronic medical record determined the number of eye care related visits to TAMC following JVN imaging.

RESULTS

Between January 2, 2001 and December 30, 2003, the JVN program accessed 1109 patients for 1800 visits. Four hundred forty-two eye-care related visits to TAMC followed the JVN Imaging: 107 diabetes-related and 335 non-diabetes related (Figure 1). Fifty-five (12%) patients had multiple diagnoses; only the primary diagnosis is reported. Of the diabetes related visits, 78 (73%) were within 60 days of the JVN imaging (Figure 2) and 29 (27%) were more than 60 days from the time of imaging (Figure 3). The non-diabetes related visits were for cataracts, exams for eyeglasses, glaucoma and macular degeneration. Of these, 245 (73%) were within 60 days of JVN imaging (Figure 4) and 90 (27%) were more than 60 days from the time of imaging (Figure 5).

DISCUSSION

Digital retinal imaging may provide a convenient and cost effective method of performing annual retinal exams for diabetes patients. There may be concerns that this method will overlook those patients that need detailed treatment by an ophthalmologist. The TAMC JVN program promptly refers those patients with diabetic retinopathy and other non-diabetes eye findings to ophthalmologists. Due to staffing constraints and the availability of appointments, patients may not receive an appointment within 60 days of

the JVN visit to TAMC. The TAMC policy refers patients to non-TAMC eye doctors through their TRICARE program if the patient cannot be scheduled with a TAMC eye care provider within 30 days. Additionally, some patients postponed scheduling dilated eye exams with an ophthalmologist because they preferred the non-dilated exams with the JVN.

CONCLUSION

The majority (73%) of eye care visits occurred within 60 days of the JVN imaging. These data suggest that the JVN imaging provided appropriate management for both diabetes and non-diabetes related eye pathologies.

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